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AUTHOR McGrevin, Carol Z.
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ABSTRACT

A cooperative staff development project, between three school districts and Texas Christian University, to change teachers' instructional behaviors and improve student achievement in mathematics, is described in this report. Part 1 outlines the operational nature of the project and part 2 focuses on the changing roles of teachers, administrators, and university personnel in school renewal. Role changes include teachers as learners, principals as facilitators, and decreased dependency on university advisors. Program outcomes include a reported improvement in student attitudes and mathematics achievement, increased teacher empowerment, and altered teaching behaviors. Recommendations are made for support by high ranking administrators, development of a sustaining school culture, and understanding of the purpose and implications of the innovation. (5 references) (LMI)

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# A COMMUNITY OF LEARNERS: NEW ROLES FOR ADMINISTRATORS AND TEACHERS IN ORGANIZATIONAL RENEWAL

by

Carol Z. McGrevin
University of Northern Colorado

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**A Community of Learners: New Roles for Administrators and Teachers in Organizational Renewal**

Stimulated by the report A Nation At Risk, most school districts and state departments of education have spent considerable time assessing the achievement levels of their students, especially in the basic skill areas. The state of Texas, like others, mandated that all students take a test of basic skills. The results of this test were published as a type of "report card' for each district and school site within the state. As a result, much effort and resources were directed to helping those schools who found themselves on the bottom of the state's ranking.

In an attempt to address deficiencies in the mathematics achievement of their students, three school districts in the Northcentral Dallas-Ft. Worth Metroplex area, entered into a cooperative effort between themselves and Texas Christian University. It was established that the school districts were interested in utilizing their EESA(Educational Economic Security Act) "flow-through" funds to supplement funds appropriated through a university EESA grant for the purpose of staff development in elementary school mathematics. Further, it was agreed that (1) staff development would be most effective if concentrated in a single elementary school within each of the districts, and (2) that a comprehensive administrative support structure was necessary to insure effective classroom implementation of the staff development plan.

This paper will describe a staff development model that grew out of the intense interest that all four parties had in improving the achievement levels, as well as the attitude toward mathematics of the children in these schools. The conceptual structure of the model is based on the premises that: (1) bringing about change in schools requires people to transform their thinking about themselves as teachers, learners and leaders; (2) teachers can be teachers of adults as well as of children; (3) administrators can

facilitate or impede classroom implementation of what is learned in staff development programs.

The paper is written in two parts. Part One addresses the operational nature of the project. Part Two focuses on the changing roles of teachers, administrators and university personnel involved in the the project. It focuses on the questions, what new roles must school personnel consider in implementing significant change, and what type of partnerships between universities and school district can enhance school renewal?

Assumptions

To be asked to change one's behavior can be rather threatening and often not encompassed with tremendous enthusiasm. If there is one thing research has taught us, it is that change is painful and often a lonely experience. Many times in schools targeting curriculum renewal, the focus to change is on the classroom teacher. In schools, when administrators expect teachers to change behaviors, while they stand on the sidelines and watch, unscathed by the trials and tribulations of the effort, teachers are very likely to be wary and less than fully committed.(Owens, 1987) And, although many hours of effort and often momentous amounts of money are spent on staff development, in the long run little is accomplished.

As we undertook this project to improve mathematical instruction in the three schools, we made several assumptions. First, in order for this project to be successful, we needed involvement and commitment from both teachers and administrators in each district. Both groups had to take ownership of the proposed change in curriculum and instructional practice. Classroom implementation of what is learned during staff development is considerably facilitated or impeded by the knowledge and attitudes of school principals and central office administrators. All three groups (teachers, principals and curriculum supervisors) must be committed to and empowered to make necessary changes in daily routines to accommodate their newly emerging math program.

Second, the new mathematics curriculum had to emphasize the meanings underlying mathematical concepts and operations and their relationships to one another. This emphasis on meaning would discourage the rote memorization and application of computational rules, while encouraging an understanding of what the rules mean and when and how to use them . In order to teach this way, the teachers themselves had to become more mathematically knowledgeable. Since teachers tend to teach the way they are taught, we would teach them math using the strategies, materials and techniques they would be expected to use with their students. Thirdly, a strong support system is need if instructional changes are to be sustained over a long period of time . As Daniel Katz and Robert L Kahn (1978, p. 660) state, " Attempts to change organizations by changing individuals have a long history of theoretical inadequacy and practical failure". Hoy and Miskel (1987)also suggests "that programs directed toward the individual must be considered in conjunction with the characteristics and effectiveness criteria of the school". (p. 409) By building a support system for change, we hoped to address this issue.

Part One

Collaborative Model for Change

The following is a description of the staff development project funded through an EESA Title II grant which was developed to address the need to change and improve three elementary schools' mathematics curriculum and teaching strategies. It was designed to help teachers understand why they needed to revamp their existing curriculum and teaching structures, as well as to help them take ownership of their new approach to teaching mathematics.

Plan of Operation

The staff development model was designed by two professors of education, one with a background in mathematics, and the other in educational administration. Each of the three

schools involved in the project had been identified through a state minimum skills test as having the lowest mathematics scores in their respective districts. Each school was under a mandate to improve student achievement in mathematics. In order to participate in the training, the schools had to agree to the following arrangements. Each of the participating schools were to establish two instructional teams--a teaching team and an administrative team. The teaching team was comprised of one teacher from each grade level, designated as the "key math teacher". This person was not necessarily the "mathematician" of the team, but a person who worked well with the other teachers at their grade level and had an interest in providing instructional leadership and coordination to the grade level team. In addition, one person was selected to be the "lead teacher" for the school to serve as an instructional specialist in math and to coordinate activities across grade levels. This person also had to be a respected person among the teachers.

The administrative team was comprised of the principal and a central office administrator responsible for the elementary school mathematics curriculum. The function of this team was to provide the necessary support for the full implementation of the project during the training period and beyond. In addition this team was to plan ways that their schools could serve as models in mathematics instruction for other elementary schools within their districts.

The success of the project resided heavily in the successful formation and communication of these two teams. The schools also had to agree to release the teacher team from teaching for a full day once a month for staff development training at the university. Substitutes were used to cover their classes. In turn, the teaching team had to agree to teach the other teachers at their grade level what they learned during the direct instruction time at the University. This meant that the project teachers would also be "staff developers", and would need help in learning how to teach other adults.

During the in-service session held at the university, the two teams would work together with both university professors for half of the time. In this segment both teachers and administrators worked together as learners, deepening their understanding of mathematics, developing new teaching strategies, and becoming acquainted with adult learning strategies. It

was during this time that many familiar and "safe" ways of teaching were challenged, discussed and discarded. The teachers and administrators were forced to reflect on the ways that they personally learned and began to realize the inconsistency between learning theory and their routinized teaching strategies. This was not an easy time. Comments such as, "I've never really spent time thinking about how I learn things and then transferring that to thinking about the ways my kids learn," and "If I dare think about math in this way, I'm forced to change the way I teach. That's scary" --demonstrate the interest and some of the fear the teachers experienced. The principals also saw their role changing. They engaged in learning as equals with their teachers. They, too, struggled with the shifting paradigms regarding teaching and learning. Over the course of the year the "power position" of the principal began to shift more toward a learner and a facilitator of the implementation of the new mathematics curriculum into the total school community than a "director of activities". The principals' enthusiasm and commitment to the changes were demonstrably apparent to the teacher teams. The teachers began to realize that it was up to them to make this program successful in their school, and they could not "hide behind" the excuse that "they (administration) won't support the changes and provide the necessary resources." As important, however, was the insight that the principals gained toward the effort the teachers were giving to become knowledgeable about a new curriculum, and their intense desire to bring about changes in their school by serving as an instructional leader. As one teacher commented, at the end of the year, "Sue, our principal, is a loving, giving person...most influential...She's been very willing to give us the chance to do what we felt was right. The people who invested the most (in the program) felt like they owned a piece of it and I think it's because of her (principal). If she had been trying to make a stand for herself--or just raise test scores--we wouldn't have felt that. I've gone beyond anything I anticipated and I think it was because of Sue. She said, 'Go for it. This is your thing. You have a chance to make a difference in this school.' "

Support Systems

In the second segment of the in-service day, the administrative team spent time together discussing their role in bringing about the change required in their schools as a result of the training. They realized that they must show support for the changes in a variety of ways. One of the most important commodities of the program was time. The project teachers needed time to work with their fellow teachers in their respective schools, they needed time to plan together as an instructional team and time to meet and plan with their grade level team. The Administrative Team was able to devise ways to stretch the resources available to give that needed time to the teachers. Not the least of which was that principals and central office administrators began releasing teachers from their classroom duties by covering the classes themselves. One principal,formerly a high school teacher, confessed that the biggest risk she had taken since becoming a principal was covering the first grade class! Not only were the teachers impressed, but they began to see this principal as a fellow teacher with an extended role rather that just "an administrator". The principal commented, "As a result, I began to feel comfortable entering the teachers' lounge with my primary teachers and engaging in real instructional conversation."

In addition to time, principals also found creative ways of securing other needed resources. The following is a list of the administrative support systems they deemed necessary to support any curricular change:

1. Providing for team planning time
2. Developing a material distribution system
3. Obtaining central office support (resources, visibility, commitment)
4. Providing for parental education regarding changes
5. Designing methods for material development
6. Assuring curriculum alignment with existing curriculum and testing program
7. Obtaining site level autonomy for administrative decisions to support program, i.e. scheduling, staffing, evaluation
8. Providing orientation for new students

9. Providing new teacher orientation to the program

10. Developing transition plans for dissemination to other schools within the district

Although not all inclusive, the principals believed that these areas were the ones wherein they could and should provide leadership.

First Year Results

The ultimate goal of this staff development model was to improve the mathematics achievement of elementary students. The year the model was implemented, it was hoped that some changes in the students' understanding and attitude toward math would take place. This was a year of learning by all and the changes were implemented in varying degrees. Teachers reported that by the end of the year there was improvement in the attitudes that children had toward math. What also was accomplished during the year was the development of a readiness for teaching and learning math differently on the part of both teachers and students.

Most important however, was that by the end of the year, most of the teachers and administrators involved in the training had internalized changes in their thinking about themselves as teachers, children as learners, and principals as instructional colleagues. As one teacher commented, "This program is part of me...This program has helped my esteem a lot, knowing I have a part in the future (of society)."

The project facilitated change, but the changes emerged from the collaborative work of the teachers and administrators. The focus was always on the individual teacher. Those individuals must often "let go" of fundamental beliefs, before they can visualize a different perspective. The process of letting go can be rather threatening. This uncertainty requires a support system. Collegial support and administrative support is critical, during and after the initial stages of any change.

As one Lead Teacher stated, "The program has been tremendously successful in uniting our teachers in a common cause... It made a big change in the way we view ourselves and the way

we teach math itself. We used to be very much separate identities at grade level. The kindergarten did what they did, but as a first grade teacher, I didn't really know they did. The same with other grade levels. Now these people see each other regularly because of the math program. It requires a lot of work. People I admire so strongly, who have succeeded, have worked very hard. We really have become a focused school."

Sustained Changes

School A - Now a Professional Development School in a partnership with the University. There is strong support for maintaining the new curriculum and teaching strategies from teachers, principal and central office administrators( Curriculum Supervisor and Assistant Superintendent). Student achievement continues to increase. Teachers are making instructional decisions regarding what and how math will be taught.

School B - Math techniques learned through the staff development project are being used by specific teachers. The teaming structure is still in place, although different people have assumed several of the roles. Since the innovation is not being embraced in its entirety, math scores can not be correlated to the project. The achievement scores on the whole do not show an increasing trend.

School C - Changes to the curriculum, instructional strategies and the teacher job enrichment have been sustained. The teachers still work in teams for curriculum development, the concept of a lead teacher is operating, and the use of problem solving and manipulatives to teach math has become a part of the every day routine. Teachers are very much involved in instructional decision making. Joint university - school district grants have been secured to continue the staff development in instructional strategies related to mathematics as well as the procurement of "sophisticated" mathematical manipulatives. The school as received a state Educational Excellence Award.

Part Two

Roles

To discuss the roles of the key groups involved in the project, I will divide the year into three stages. Stage I was the Preparation and Planning time, Stage II was Implementation and Stage III was Institutionalization.

Stage I: Preparation and Planning

During this time the key groups involved took on rather traditional roles. Administrators - In the school districts the two curriculum directors and two assistant superintendents for instruction played the typical "boundary spanning role of representing the district, information processing and gatekeeping, networking, and linking and coordinating (Miles 1980). The three principals also played a boundary spanner role, but concentrated on scanning the environment for resources that could help them improve the achievement levels of their students and at the same time protecting their schools from unwarranted external influences (central office and university). Sarayevenni (1990) would classify their leadership style at this point as "fostering" - What can you do to help us and what do we need to do in return? Burns would call it *transacting* (Burns, 1978). Teachers - No teachers from any of the three districts were included in this stage. Professors - University personnel played the role of expert and helper. At this stage, the University professors were the authority figures within the group. We brought a knowledge base in mathematical content and pedagogy as well as change facilitation skills. The leadership role at this point for the professors was a fostering style and a tendency to move beyond that into a"building style", appealing to the school personnel's need to be competent professionals.

Stage II - Implementation

As the project moved into the implementation phase, roles became fuzzy and unclear.

[illegible] At the beginning of the project the teachers were not that they were expected to learn new ways of teaching mathematics to their students and they were responsible for teaching the newly trained counterparts to their colleagues who were not directly involved in the training process. The teachers were supposed to continue to teach children but this time they would be teachers of adults as well. Teachers typically do not spend much time developing their knowledge. When was it that we, they realised that the pedagogy successful with children was not necessarily successful with adults. Staff development was an additional as it adds. Perhaps the most difficult lesson for most of the teachers was learning to lead their peers. But overall, despite a few budding scholastic enthusiasm for the project. Many had seen other 'innovations' come and go and were waiting for this one to move on also. Others were concerned that they could do 'everything right' which really meant they were afraid that not everyone could stay. Still others were concerned that their 'secret' of not knowing much about mathematics would be found out (Adam and McGowan, 1999). There is more to educating adults than instruction!

The teachers quickly realised that their role of teacher was changing too. They were starting to learn teaching techniques but soon realised that they needed to increase their mathematical knowledge base. Because of our initial assumption that teachers teach as they are taught, our teachers were exposed to cooperative learning and problem solving teams. For most of them, this was a new conceptualisation of the role of teacher. As a result, they began to experience the tensions involved in 'struggling' with learning and a new (renewed) sensitivity to their students struggles emerged. As one teacher commented "I have a weakness in this idea that I'm learning and that is for - my kids are feeling that way". Another annoyed "I don't feel comfortable with my math content behind some of the manipulative activities, I know what to do, I just don't know why. I think my students think that way, too about math".

As the year progressed another task in their role emerged. Since they were learning mathematics and felt much more at an authority in the subject, they began to assume the role of teacher leader. As longer were they content to be 'told' what to do, how to do it and when to do it. They began to exhibit strong feelings and beliefs about how math should be taught in our

school. They visualized success at meeting student needs and they were able to plan for and articulate these strategies. What they now needed was support and encouragement. This support was supplied by their colleagues in the training project and for the first time, many experienced "colleagueship". But more was needed. Many resources needed to support the program were out of their area of control. Enter the role of the principal. Principals/ Administrators - As the teachers were learning math and instructional techniques, so were the administrators. They too acknowledged a need to strengthen their math skills. Once having done so, they saw the inconsistences of the existing math program with the way children and adults learn. They built a confidence level to a point where they could justify needed changes in their schools to external and internal constituencies. They were no longer a side line coach , they were one of the players. They too had become a learner.

In addition, they also saw a need to change the leader role. As the teachers ability to make decisions regarding the math program increased, the principals' need to direct and control lessened. Facilitator and encourager was much more an appropriate response. They focused their discussions on the conditions needed to insure that the program would work when fully implemented in the school. They continued as boundary spanners, but less time gatekeeping and protecting, and more time representing, transacting and coordinating with other principals, their superintendent, and the public. Their relationship with the Central Office and with the Superintendent varied with the individual principals. One veteran principal felt very comfortable with the Assistant Superintendent for Instruction, and although she had been a "secondary teacher", now an elementary principal, she perceived that this project had the "blessings" of her superiors. The Assistant Superintendent occasionally came to the training sessions and participated with the teachers and principals. The other two principals did not perceive such support, and constantly worried about their superiors reactions to the changes and what would happen if their school's test scores didn't improve as a result of the time, effort and money devoted to the project. (In retrospect, this proved to be an important variable in sustaining the project -see stage III section)

However, with their teachers, those in the project as well as those in the school not directly involved in the project, the principals began to focus on intrinsic motivations. They began to empower their teachers to make decisions regarding the content of the curriculum and teaching strategies. Scheduling changed, techniques changed (children were no longer seated at desks with paper and pencil and textbook for the entire math instructional period - children were talking, moving and using manipulative, concrete materials to problem solve together). Communication with parents increased. Teachers began to observe each other and spend time discussing what worked and what didn't and why. This type of behavior emerged from an "empowered " group of teachers rather than at the directive of the principal. As one teacher stated " Sue(principal) told us to 'go for it'. This is your chance to make a difference". One of the principals commented on building pride in the building. "There is more positive energy and climate in the building now that we are involved in the project. This is an old building, nothing is new in the building - even our NEW doors are from some other school. But my teachers now feel a sense of pride in being a part of this school - many for the first time." University Professors - The process of empowering teachers and administrators with a knowledge base, did not lessen the authority figure of the professors. Perhaps it increased it, when the participants realized how much more they needed and wanted to know. We continued to act as change agent and kept our referent power base. We also continued as a financial resource base with our Federal Grant( EESA Funds) and two smaller university grants. We too became learners. We re-visited the reality of schools and constantly "bumped into" the political world of school administration. This fact of organizational life led us to assume a buffer role between the individual school sites and their central offices. (i.e. which standardized tests would be used and for what purpose, elimination of kindergarten testing, conferences with superintendent regarding legitimacy of the teaching methodologies etc.) As per the initial plan, our role as change agents was central to the project for the first year. We tried to lessen the schools' dependency on us as the year progress. As their authority and confidence grew, their responsibility for decision-making was also growing. During the year after the project, we maintained contact with the schools by

providing additional teaching materials and occasionally touching base with the them on a "as needed basis". Resources for this came from additional grants that we as University professors were able to secure from the University and from the Exxon Corporation.

Stage III - Institutionalization

This stage represents one year and three months after the one year project concluded. During the first year after the project, of the three sites, one became a clinical school for the University in conjunction with the undergraduate and graduate teacher education program. The second site became a dissemination and demonstration school for other schools addressing a similar issue of mathematics education. The principal of this school also became a resource for the TCU's Principal Center. The third site became a resource for other schools within their district. It is important to realize that during this year the two University professors kept in contact with the schools linking them with other schools and districts interested in improving their math program.(For a description of role changes that have been maintained see Appendix A.)

Year One

Teachers - Most of the teachers who were project participants maintained their role of teacher - leader. They continued to offer leadership in connection with the mathematics program in their schools and to other schools within and without their districts. In one school they functioned as clinical teachers with student teachers . In another they became "consultants" to other teachers and principals both within and with out of their district.

Principals - Conscious efforts were made to keep the "model" functioning. In the schools were the principals perceived support from their superiors, more fidelity to the fundamental elements of the model was maintained. Where less support was felt, there was a tendency to return to the school routine endorsed by the superintendent. Student achievement in all three schools did increase.

Year Two

Two months into the second year after the project ended there is a trend in one of the three schools toward retrenchment. In that school, several of the project teachers have moved from the area and have been replaced by teachers schooled in traditional teaching methods and not a strong math background. Little effort is being made to "socialize" those folks. Without the assistance of the University personnel, many of the project teachers are floundering with their role of teacher-leader. Although they are using the innovation in their teaching, the excitement of working with other teachers who are not as enthusiastic, has become "too much of an extra burden". "Just teaching my kids is hard enough. The culture for change in this school has not been institutionalized. The building principal does not perceive much support for the program from her superiors. The other two schools have been able to sustain the changes that occurred in both the mathematics curriculum as well as the attitude of the staff toward endorsing necessary change. One principal commented " It doesn't take as much of my energy to keep the initiative going. The cooperative, sharing, collegial culture keeps it all going. This project put us on a focus toward excellence in teaching and removed the barriers of teachers not wanting to change. We are now moving into the area of whole language approach to teaching reading and we are ready to make the the transition. We remember the pain of changing, but we are well aware of the growth as a result.We wouldn't go back to the 'old way' of doing things. We've moved beyond being wedded to a textbook approach to teaching."

Conclusions

The staff development model for changing teachers instructional behavior in the area of mathematics is sound. It does produce a change in attitude and behavior. The element of administrative involvement is critical for its success. The model would be enhanced with three additional components. One, support for and involvement in the process from the beginning, by key, high ranking administrators. Either the superintendent or assistant superintendent must

be included and be willing to support the project with necessary funds and verbal commitment to the philosophical base of the innovation. In the two districts where this occurred the innovation is still flourishing. In the other where this support was not the case, the innovation as a school wide change is floundering. Two, time must be spent developing a culture that will sustain the innovation. It is difficult for one school to change if it is tightly coupled with the district. When a school district operates on a strong bureaucratic culture, it is hard for one school to maintain an "outlier" status. Thirdly, the motivation for the innovation and its implications for cultural change most be thoroughly understood by the key decision makers, especially the principal. If the motivation is "just to increase test scores" and not to change the culture of the school toward shared participation and teacher empowerment, then this particular model is not appropriate.

Honest partnerships between school districts and universities can help improve schools. Universities can bring necessary resources e.g. expertise, financial and legitimacy. They can also guide people involved in the change to anticipate and prepare for their changing roles. On the other side of the equation, school districts can provide sites to conduct research and provide clinical settings for administrative internships and pre-service teaching and learning experiences. It also provides a setting where universities can understand education from a school and district level. Caution must be taken however when university personnel act as change agents. Sufficient time must be given to a project that is going to alter the lives of the people in the schools. A quick in and out, gather data and leave approach raises some professional ethical questions. Early and continuous communication among those directly involved in the project and those responsible for the instructional component of the school district is critical.

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## CHANGES IN ROLES WHICH OCCURRED AS A RESULT OF PARTICIPATION IN STAFF DEVELOPMENT PROJECT

| FROM | TO | RESULT |
|---|---|---|
| **Teachers** | | |
| Instructing Children | Instructing Adults | Job Enlargement/Enrichment |
| Textbook Dependent on Math Content | Increase Mathematic Knowledge | Authority Moved from External to Internal Source |
| Passive Learner | Active Learner/Cooperative | Collegiality Among Staff<br>Problem Solver<br>Sensitivity to Learners Struggle |
| Follower | Leader | Empowerment to Make Operational/ Instructional Decision<br>Ability to Respond to External Forces Thereby Became Responsible for Their Decisions |
| **Administrators** (Principals, Curriculum Supervisors) | | |
| Manager/Leader | Instructional Leader (Mathematics) | Rapport with Teachers on Instructional Matter |
| Director/Controller | Active Involvement with Change Initiative | Authority/Confidence when Working with Public (Superintendent, Board, Parents) |
| Reactive | Facilitator of Change<br>Proactive | Program Assimilated into Routine |
| **Professors - University** | | |
| University Based | Clinical | Buffer - School Site<br>Central Office<br>Knowledgeable about Political Environment of Schools |
| Initiator of Change<br>Heavy Involvement | Less Involvement | District Retrenchment |

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